

Listing of Claims:

Please cancel claims 1-55 without prejudice or disclaimer.

56. (original) A supramolecular structure comprising:

a multi-generation dendrimer comprising a core, a plurality of interior generations spherically disposed around the core and an outermost generation comprising a plurality of dendritic branches having terminal groups sufficiently reactive to undergo addition or substitution reactions; and

at least one cross-linkable moiety bonded to the terminal groups of each dendritic branch via a labile bond; wherein the cross-linkable moieties of adjacent dendritic branches are intramolecularly cross-linked to form a dendrimer having an intramolecularly cross-linked peripheral surface.

57. (currently amended) The supramolecular structure of claim 67 56, wherein the dendrimer is selected from the group consisting of poly(propylenimine) (DAB) and polyamidoamine (PAMAM) dendrimers.

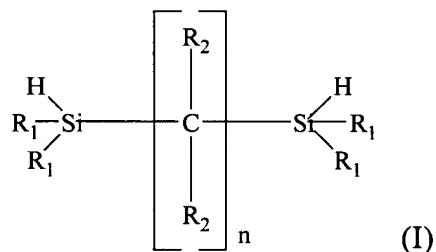
58. (currently amended) The supramolecular structure of claim 67 56, wherein the labile bond is selected from the group consisting of silicon-oxygen, silicon-oxygen-carbon, oxygen-nitrogen, nitrogen-silicon, nitrogen-carbonyl-nitrogen, silicon-acetylene, amide, blocked isocyanates and ureas.

59. (currently amended) The supramolecular structure of claim 69 58, wherein the labile bond is a nitrogen-silicon bond.

60. (currently amended) The supramolecular structure of claim 67 56, wherein the dendritic branches are intramolecularly crosslinked by one method selected from group consisting of hydrosilation, olefin metathesis, radical polymerization, polycondensation, anionic polymerization, cationic polymerization and coordination polymerization.

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61. (currently amended) The supramolecular structure of claim 74 60, wherein the crosslinking method is hydrosilation.
62. (currently amended) The supramolecular structure of claim 74 60, wherein the dendritic branches are crosslinked with a crosslinking agent.
63. (currently amended) The supramolecular structure of claim 73 62, wherein ~~crosslinking agent is selected from double and multiple crosslinking agents~~ the crosslinking agent is a double crosslinking agent or a multiple crosslinking agent.
64. (currently amended) The supramolecular structure of claim 74 63, wherein the double crosslinking agent is of the general formula (I):



wherein where R₁ is selected from the group consisting of hydrogen or organic groups having from about 1 to about carbon atoms, R₂ is selected from the group consisting of hydrogen and organic groups having from about 1 to about 30 carbon atoms, and x is an integer from about 1 to about 4.

65. (currently amended) The supramolecular structure of claim 74 63, wherein the multiple crosslinking agent is selected from the group consisting of CH₃Si(CH₂CH₂Si(CH₃)₂H)₃; CH₃(CH₂SiH₂)₂CH₃; HC(Si(R¹)₂H)₃; Si(R¹)₂H₂; (SiR¹HO)₄; linear polymers selected from the group consisting of (CH₃)₃Si-O-(SiR²H-O)_n-Si(CH₃)₃, H(CH₃)₂Si-O-(SiPH₂)-OSi(CH₃)₂H-O)_n-Si(CH₃)₂H, (CH₃)₃Si-O-(Si(CH₃)(H)-O)_m-(Si(CH₃)(C₈H₁₇)-O)_n

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$\text{Si}(\text{CH}_3)_3$, and $\text{H}_2\text{R}^3\text{Si}(\text{SiR}^3\text{H})_n\text{-SiR}^3\text{H}_2$; cyclic compounds; a dendrimer; and mixtures thereof; wherein

R^1 is selected from hydrogen and organic groups having from about 1 to about 15 carbon atoms;

R^2 is selected from methyl and ethyl groups;

R^3 is selected from aryl and alkyl groups having from about 1 to about 15 carbon atoms;

n is a positive integer from about 10 to about 100; and

m is a positive integer from about 10 to about 100.

66. (currently amended) The supramolecular structure of claim 74 60, wherein olefin metathesis includes the use of a ring opening metathesis polymerization (ROMP) catalyst.
67. (currently amended) The supramolecular structure of claim 74 60, wherein olefin metathesis includes the use of a cyclic diene metathesis (ADMET) catalyst.
68. (currently amended) The supramolecular structure of claim 74 60, wherein the coordination polymerization is Ziegler Natta polymerization.
69. (currently amended) The supramolecular structure produced by claim 67 56, wherein the core dendrimer contains catalytic centers.
70. (currently amended) The supramolecular structure produced by claim 67 56, wherein the core dendrimer contains metallocores.